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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,850	02/11/2002	Jun Li	10015452	6650

7590 01/17/2006

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EXAMINER	
RUTTEN, JAMES D	

ART UNIT	PAPER NUMBER
2192	

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,850	LI ET AL.	
	Examiner	Art Unit	
	J. Derek Rutten	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to Applicant's amendment dated 10/19/2005, responding to the 7/21/2005 Office action provided in the rejection of claims 1-25, wherein claims 1, 3, 6, 10, and 12 have been amended, and claim 5 has been canceled. Claims 1-4 and 6-25 remain pending in the application and have been fully considered by the examiner.

2. Applicant has primarily argued that the Bulatov reference used in the rejection under 35 U.S.C. 102(b), does not disclose "generating a linking graph that links said first hyperbolic tree and a second hyperbolic tree" (See page 13 of Applicant's remarks). This argument is not convincing, as will be addressed below.

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Response to Arguments

4. Applicant's arguments (see pages 9-11) regarding the rejection of claims 1-13 under 35 U.S.C. § 101 have been considered and are persuasive. Therefore, this rejection has been withdrawn.

5. Applicant's arguments (see pages 11-12) regarding the rejection of claim 22 under 35 U.S.C. § 112, first paragraph, have been considered but are not persuasive. The problem lies in the language of the claim: "said unique identifier is used by said at least one display device to query said analyzer". While paragraph [0190] of the specification discloses a display that is driven by software, the display itself is not using the identifier, nor querying the analyzer. There is no disclosure that can be found to support a display device that uses the identifier to send signals that would be used by the analyzer. Rather, as described in paragraph [0187], the display device appears to be a typical computer display that simply receives whatever signal is sent by the computer that drives it.

6. Applicant's amendments to claim 3 and 12 have overcome the 35 U.S.C. § 112, second paragraph rejections. Therefore, these rejections have been withdrawn.

7. Applicant's arguments (see pages 13 and 14) regarding the rejection of claim 5 under 35 U.S.C. § 102(b) has been considered but is not persuasive. Applicant essentially argues that the citation of Bulatov paragraph 8 was taken out of context, and that Bulatov cannot link a first tree with a second tree since there is only one tree. However, Bulatov describes an initial hyperbolic

tree that contains methods, classes, and packages. Clicking a method produces a linking graph that links this first tree with a second tree that shows the methods callers and callees. While this process would appear to augment the first tree with the appearance of the second tree, this nonetheless generates a linking graph that links the two trees. It is noted that the features upon which applicant relies (i.e., that the linking graph be displayed separately from the trees) are not recited in the rejected claim. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

8. Applicant's arguments (see pages 14 and 15) regarding the rejection of claim 10 under 35 U.S.C. § 102(b) has been considered and is persuasive. However, after further consideration, a new rejection is made in view of "A Focus+Context Technique Based on Hyperbolic Geometry for Visualizing Large Hierarchies", by Lamping et al.

Specification

9. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. See paragraph [0190]: http://www.inxight.com. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 22 recites: "said unique identifier is used by said at least one display device to query said analyzer for further runtime information". Page 57, paragraph [0187] of the specification provides support for a display device that includes hardware support, and necessary user-interface related software support. However, this does not provide information related to a device that includes software support, i.e. the ability to drive software, that would allow the device to independently query an analyzer for such non-user-interface related information, such as runtime information. Further search of the specification did not reveal detailed information regarding a display device that queries an analyzer for runtime information. Interpretation has been made as --said unique identifier is used to query said analyzer for further runtime information--.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-3, 5-8, 10-14, 18, 19, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by "Java Hyperbolic Browser in action" by Vladimir Bulatov (hereinafter "Bulatov").

In regard to claim 1, Bulatov discloses:

A computer implemented method for displaying computer system runtime information, on a display device Bulatov discloses a method of using a hyperbolic profiler browser that displays runtime information.

comprising the steps of:

displaying a plurality of runtime information items in a first hyperbolic tree as a plurality of nodes; See paragraph 6:

> All tree is represented by 3 levels of nodes: packages (blue cyrcles), classes (green cyrcles), methods(pink cyrcles). All nodes are sorted by time and are placed clockwise starting from noon.

showing one or more links between nodes in said first hyperbolic tree, with said one or more links representing node causal relationships; and See paragraph 5:

> The Hyperbolic Browser represents all methods, classes and packages as a tree. However to make possible to fit big amount of methods and classes (hundreds and thousands in relatively big program), it uses Poincare-disk model of hyperbolic plane.

According to the online encyclopedia wikipedia.org: "...a tree is a widely-used computer data structure that emulates a tree structure with a set of linked nodes..." This is the type of tree used by Bulatov. For further description of causal relationships see paragraph 8:

> Clicking by mouse over a method's cyrcle [*sic*] causes drawing of bounds, which connect this method with its callers

moving a particular tree node of said first hyperbolic tree to a center node position in said first hyperbolic tree if a user input selects said particular tree node. See paragraph 7:

> Dragging node by mouse to center of Poincare disk caused considerable zooming in of visible size of this cyrcle [*sic*] with corresponding zooming out of nodes, which are going to boundary of disk.

generating a linking graph that links said first hyperbolic tree and a second hyperbolic tree. See paragraph 8 for a description of the generation and display of a second tree that is linked to the original tree:

> Clicking by mouse over a method's cyrcle (sic) causes drawing of bounds, which connect this method with its callers (yellow hyperlines) and callees (white hyperlines). The selection is reflected also in corresponding lists of main window. Clicking by mouse over class or package node causes drawing of all caller-callee bounds for methods from corresponding class or package.

This passage describes a linking graph that is produced by overlaying a caller-callee tree over the method/class/package tree.

In regard to claim 2, the above rejection of claim 1 is incorporated. Bulatov further discloses: *wherein the displaying step dynamically generates said first hyperbolic tree.* See paragraph 4. The tree is dynamically generated upon selection of the "Show Graph" menu item.

In regard to claim 6, the above rejection of claim 1 is incorporated. Bulatov further discloses: *generating the linking graph that links said first hyperbolic tree and a second hyperbolic tree if a user input is a navigation input that selects said second hyperbolic tree.* See paragraph 8 as cited in the above rejection of claim 1.

In regard to claim 7, the above rejection of claim 1 is incorporated. Bulatov further discloses: *wherein the generating step generates a linking graph that connects a current node of said first hyperbolic tree to a corresponding node in said second hyperbolic tree.* See paragraph 8 as cited in the above rejection of claim 1.

In regard to claim 8, the above rejection of claim 1 is incorporated. Bulatov further discloses: *dynamically generating said linking graph.* See paragraph 8 as cited above in the rejection of claim 1.

In regard to claim 14, Bulatov discloses:

A visualization system adapted for displaying runtime information from a computer system, Bulatov discloses using a browser to visualize runtime information in paragraph 1. Browsers inherently require a computer system to operate.

comprising:

a repository for storing a plurality of runtime information items from said computer system; See paragraph 1:

> It differs from real application only by the fact, that it takes name of profile as an applet parameter. **This file should be located at applet's host,** because applet unable to load file from your computer directory hard drive.

a display device capable of displaying one or more runtime information items of said plurality of runtime information items; and See paragraph 3:

> After applet will be loaded (about 100K of *.class files make take a while...) there will appear main HyperProf **window** with 4 lists of profile info. You may **click** or sometimes **double click on items** in lists to get list of corresponding callers and callee for each method.

Note that a display device is inherently required since Bulatov refers to windows, and clicking on items which need a display device to function properly.

an analyzer for retrieving said one or more runtime information items from said plurality of runtime information items, processing said one or more runtime information

items, and generating a display of said one or more runtime information items on said display device; See paragraph 5 as cited in the above rejection of claim 1:

> The Hyperbolic Browser represents all methods, classes and packages as a tree. However to make possible to fit big amount of methods and classes (hundreds and thousands in relatively big program), it uses Poincare-disk model of hyperbolic plane.

The browser uses profile information to generate a hyperbolic tree. Therefore, an analyzer is inherent, otherwise the relationship of data would be impossible to represent.

wherein said display device displays said runtime information as at least two hyperbolic trees. See paragraph 8:

> Clicking by mouse over a method's cyrcle causes drawing of bounds, which connect this method with its callers (yellow hyperlines) and callees (white hyperlines).

Thus, at least two hyperbolic trees are displayed using yellow hyperlines for the first, and white hyperlines for the second.

In regard to claim 18, the above rejection of claim 14 is incorporated. Bulatov further discloses: *wherein a hyperbolic tree of said at least two hyperbolic trees comprises a dynamic call graph hyperbolic tree.* See paragraph 4.

In regard to claim 19, the above rejection of claim 14 is incorporated. Bulatov further discloses: *wherein said at least two hyperbolic trees represent different aspects of a system characterization.* See paragraph 8.

In regard to claim 25, the above rejection of claim 14 is incorporated. Bulatov further discloses: *wherein said display device is capable of being launched and operated*

inside a web browser and wherein said display device interacts directly with said analyzer or through a web server. See paragraph 1.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bulatov as applied to claim 1 above, and further in view of "Visual Mining Large Web-based Hyperbolic Space Using Hidden Links" by Hao et al. (hereinafter "Hao").

In regard to claim 3, the above rejection of claim 1 is incorporated. Bulatov further discloses: *wherein causal relationship runtime information is displayed.* See paragraph 3. Bulatov does not expressly disclose *in a non-tree graph.* However, in an analogous environment, Hao teaches that a non-tree graph is used to provide a representation of a secondary path, or cross link. See page 3 "Secondary Path (non-tree/cross link)". It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Hao's non-tree graph with Bulatov's hyperbolic tree. One of ordinary skill would have been motivated to display nodes with a secondary parent in order to graphically link them with secondary trees.

16. Claims 4, 9, 15, 16, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bulatov as applied to claim 1 above, and further in view of prior art of record U.S. Patent 6,026, 362 to Kim et al. (hereinafter "Kim").

In regard to claim 4, Bulatov does not expressly disclose: *wherein a user input to a displayed hyperbolic tree is capable of expanding or contracting said displayed hyperbolic tree.* However, in an analogous environment, Kim teaches that a node in a tree can be expanded and contracted. See column 11 lines 50-53. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kim's expanding and contracting nodes with Bulatov's hyperbolic trees. One of ordinary skill would have been motivated to concentrate his or her efforts in a particular area of the program (Kim column 11 lines 48-50).

In regard to claim 9, the above rejection of claim 1 is incorporated. Bulatov further discloses *moving into focus a selected node...* See paragraph 7 as cited in the rejection of claim 1 above. Bulatov further discloses *a second hyperbolic tree.* See paragraph 8 as cited above in the rejection of claim 5. Bulatov does not expressly disclose *wherein said selected node was in a contracted subtree.* However, in an analogous environment, Kim teaches that a node can be selected for focus from a contracted subtree. See column 11 lines 50-53. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kim's expanding and contracting nodes with Bulatov's hyperbolic trees. One of ordinary skill would have

been motivated to concentrate his or her efforts in a particular area of the program (Kim column 11 lines 48-50).

In regard to claim 15, the above rejection of claim 14 is incorporated. Bulatov does not expressly disclose *wherein said display device communicates with said analyzer over a second communication link.* However, in an analogous environment, Kim teaches that a display device can communicate with a debug analyzer via a bus or I/O channel. See column 7 lines 18-25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kim's I/O channel with Bulatov's display. One of ordinary skill would have been motivated to connect a display to a debug analyzer in order to provide meaningful data to the display.

In regard to claim 16, the above rejection of claim 14 is incorporated. Bulatov does not expressly disclose *wherein said repository communicates with said analyzer over a first communication link.* However, in an analogous environment, Kim teaches that a repository can communicate with a debug analyzer via a bus or I/O channel. See column 7 lines 18-25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kim's I/O channel with Bulatov's repository. One of ordinary skill would have been motivated to connect a repository to a debug analyzer in order to provide data to the analyzer.

In regard to claim 23, the above rejection of claim 14 is incorporated. All further limitations have been addressed in the above rejection of claim 9.

17. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bulatov in view of prior art of record "A Focus+Context Technique Based on Hyperbolic Geometry for Visualizing Large Hierarchies", by Lamping et al. (hereinafter "Lamping")

In regard to claim 10, Bulatov discloses: *an electronic display device* Bulatov describes applet windows in paragraph 3 which can only be generated using an electronic display device.

Bulatov does not expressly disclose automatically moving tree nodes upon receiving a user input selection of the node. However, in an analogous environment, Lamping teaches that a node can be automatically moved to the center position upon selection. See page 6 "Change of Focus":

> The user can change focus either by clicking on any visible point to bring it into focus at the center, or by dragging any visible point interactively to any other position.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Lamping teaching of changing focus with Bulatov's hyperbolic browser. One of ordinary skill would have been motivated to transform a display in order to provide a new display context.

All further limitations have been addressed in the above rejection of claims 1 and 6

In regard to claims 11 and 13, the above rejection of claim 10 is incorporated. All further limitations have been addressed in the above rejections of claims 2 and 4, respectively.

18. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bulatov and Lamping as applied to claim 10 above, and further in view of Hao.

In regard to claim 12, the above rejection of claim 10 is incorporated. All further limitations have been addressed in the above rejection of claim 3.

19. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bulatov and Lamping as applied to claim 10 above, and further in view of Kim.

In regard to claim 13, the above rejection of claim 10 is incorporated. All further limitations have been addressed in the above rejection of claim 4.

20. Claims 17 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bulatov as applied to claim 14 above, and further in view of U.S. Patent 6,654,759 to Brunet et al. (hereinafter "Brunet").

In regard to claim 17, the above rejection of claim 14 is incorporated. Bulatov further discloses that a hyperbolic browser can be used to visualize hierarchical data in general. See paragraph 11. Bulatov does not expressly disclose *wherein said at least two hyperbolic trees comprises an interface repository hyperbolic tree.* However, in an

analogous environment, Brunet teaches that an application programming interface (API) can be represented as a hierarchical tree. See column 12 lines 18-20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Brunet's API tree with Bulatov's hyperbolic browser . One of ordinary skill would have been motivated to allow generic access to an object in a tree (Brunet column 4 lines 24-26).

In regard to claim 20, the above rejection of claim 14 is incorporated. Bulatov discloses cross-linking tree nodes in a hyperbolic tree. See paragraph 8 as cited in the above rejection of claim 5. Bulatov does not expressly disclose *wherein said analyzer assigns a unique identifier for each displayed hyperbolic tree node, and wherein said unique identifier is used for cross-linking between tree nodes in a hyperbolic tree.* However, Brunet teaches uniquely identifying nodes in a tree and cross-linking a subtree using unique identifiers. See column 7 lines 30-32 and 46-48. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Brunet's unique identifiers with Bulatov's nodes. One of ordinary skill would have been motivated to assign a unique identifier to a node in order to distinguish it from other nodes.

In regard to claim 21, the above rejection of claim 14 is incorporated. Bulatov discloses cross-linking a first and a second tree node. See paragraph 8 as cited in the

above rejection of claim 5. All further limitations have been addressed in the above rejection of claim 20.

In regard to claim 22, the above rejection of claim 14 is incorporated. Bulatov discloses *query said analyzer for further runtime information items for a current hyperbolic tree node.* See paragraph 8. All further limitations have been addressed in the above rejection of claim 20.

21. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bulatov as applied to claim 14 above, and further in view of Kim, and further in view of "The Hyperprof – hyperbolic profile browser for Java" by Bulatov (hereinafter "README file").

In regard to claim 24, the above rejection of claim 14 is incorporated. Bulatov discloses inspection of node information, path information. See paragraphs 3 and 9. Also, the "README file" is referenced in paragraph 3. Specifically, see page 3 of the README file in the second paragraph for further information regarding subgraph information. Bulatov does not expressly disclose *wherein a tree-specific, node-oriented menu is provided for the user to inspect... information.* However, Kim teaches a tree specific node oriented menu for inspecting information related to a node of a tree. See column 16 lines 38-51. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Kim's menu with Bulatov's tree nodes. One of

ordinary skill would have been motivated to permit greater customization of displayed information.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (571) 272-3703. The examiner can normally be reached on T-F 6:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jdr

TUAN DAM
SUPERVISORY PATENT EXAMINER